Amendments to the Claims

- 1. (Original) A pharmaceutical composition for topical administration, comprising a phthalocyanine photosensitizer or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.
- 2. (Original) A pharmaceutical composition of claim 1, wherein the phthalocyanine has a structure of formula (I) or a pharmaceutically acceptable salt thereof

$$[Pc \cdot M]$$

(I)

wherein Pc is a substituted or unsubstituted phthalocyanine; and

M is a diamagnetic metal ion, optionally complexed with or covalently bound to one or two axial ligands, wherein the metal ion is coordinated to the phthalocyanine moiety.

3. (Original) A pharmaceutical composition of claim 1, wherein the phthalocyanine has a structure of formula (II) or a pharmaceutically acceptable salt thereof

$$R^{15}$$
 R^{16}
 R^{1}
 R^{14}
 R^{13}
 R^{13}
 R^{10}
 R^{9}
 R^{8}
 R^{7}
(II)

wherein M is a diamagnetic metal ion optionally complexed with or covalently bound to one or two axial ligands, wherein the metal ion is coordinated to the phthalocyanine moiety; and $R^1-R^{16} \ \text{are each independently selected from hydrogen, halogen, nitro, cyano, hydroxy, thiol,} \\ \text{amino, carboxy, aryl, heteroaryl, carbocyclyl, heterocyclyl, $C_{1\text{-}20}$alkeyl, $C_{1\text{-}20}$alkenyl, $$

 $_{20}$ alkynyl, $C_{1\text{-}20}$ alkoxy, $C_{1\text{-}20}$ acyl, $C_{1\text{-}20}$ alkylcarbonyloxy, $C_{1\text{-}20}$ aralkyl, $C_{1\text{-}20}$ hetaralkyl, $C_{1\text{-}20}$ carbocyclylalkyl, $C_{1\text{-}20}$ heterocyclylalkyl, $C_{1\text{-}20}$ aminoalkyl, $C_{1\text{-}20}$ alkylamino, $C_{1\text{-}20}$ thioalkyl, $C_{1\text{-}20}$ alkylthio, $C_{1\text{-}20}$ hydroxyalkyl, $C_{1\text{-}20}$ alkyloxycarbonyl, $C_{1\text{-}20}$ alkylaminocarbonyl, $C_{1\text{-}20}$ alkylcarbonylamino, $C_{1\text{-}10}$ alkyl-Z- $C_{1\text{-}10}$ alkyl;

 R^{17} is selected from hydrogen, $C_{1\text{-}20}$ acyl, $C_{1\text{-}20}$ alkyl, and $C_{1\text{-}20}$ aralkyl; and Z is selected from S, NR^{17} , and O.

4. (Original) A pharmaceutical composition of claim 1, wherein the phthalocyanine has a structure of Formula (III) or a pharmaceutically acceptable salt thereof

wherein M is $(G)_aY[(OSi(CH_3)_2(CH_2)_bN_c(R')_d(R'')_e)_fX_g]_p;$

Y is selected from Si, Al, Ga, Ge, or Sn;

R' is selected from H, CH₃, C₂H₅, C₄H₉, C₄H₈NH, C₄H₈N, C₄H₈NCH₃, C₄H₈S, C₄H₈O, C₄H₈Se, OC(O)CH₃, OC(O), CS, CO, CSe, OH, C₄H₈N(CH₂)₃CH₃, (CH₂)₂N(CH₃)₂, (CH₂)_nN((CH₂)_o(CH₃))₂, and an alkyl group having from 1 to 12 carbon atoms;

R" is selected from H, SO_2CH_3 , $(CH_2)_2N(CH_3)_2$, $(CH_2)_{11}CH_3$, $C(S)NHC_6H_{11}O_5$, $(CH_2)_nN((CH_2)_o(CH_3))_2$, and an alkyl group having from 1 to 12 carbon atoms;

G is selected from OH and CH₃;

X is selected from I, F, Cl, or Br;

a is 0 or 1;

b is an integer from 2 to 12;

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c is 0 or 1;
d is an integer from 0 to 3;
e is an integer from 0 to 2;
f is 1 or 2;
g is 0 or 1;
n is an integer from 1 to 12;
o is an integer from 1 to 11; and
p is 1 or 2.
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- 6. (Original) A pharmaceutical composition of claim 5, wherein M is HOSiOSi(CH₃)₂(CH₂)₃N(CH₃)₂.
- 7. (Currently amended) A pharmaceutical composition of claim 1, wherein the phthalocyanine has a structure of Formula (IV) or a pharmaceutically acceptable salt thereof

 $SiPc[(OR^1)(OR^2)]$

(IV)

wherein R^1 is selected from H and [[R2]] \underline{R}^2 ; each R^2 is independently $Si(R^3)_2(C_{1-12}alkyl-N(C_{1-12}alkyl)_2)$; each R^3 is independently selected from $C_{1-12}alkyl$, $C_{1-12}alkoxy$, $C_{1-12}aralkyl$, aryloxy, and aryl.

- 8. (Currently Amended) A pharmaceutical composition of any one of claims 1-7 claim 1, wherein the phthalocyanine is formulated as a salt selected from hydrobromide, hydrochloride, sulfate, bisulfate, phosphate, nitrate, acetate, pyruvate, valerate, oleate, palmitate, stearate, laurate, benzoate, lactate, phosphate, tosylate, citrate, maleate, fumarate, succinate, tartrate, naphthylate, mesylate, glucoheptonate, lactobionate, and laurylsulphonate salts.
- 9. (Original) A pharmaceutical composition of claim 8, wherein the phthalocyanine is formulated as a salt selected from hydrochloride and pyruvate.
- 10. (Original) A pharmaceutical composition of claim 9, wherein the phthalocyanine is formulated as a hydrochloride salt.
- 11. (Original) A pharmaceutical composition of claim 10, wherein the phthalocyanine is formulated as a pyruvate salt.
- 12. (Original) A method for treating epithelial cancer, comprising

 (i) topically administering a photosensitizer to an epithelial surface; and

 (ii) irradiating the epithelial surface.
- 13. (Original) A method of claim 12, further comprising a pharmaceutically acceptable carrier.
- 14. (Original) A method of claim 13, wherein the photosensitizer is a phthalocyanine or a pharmaceutically acceptable salt thereof.

15. (Original) A method of claim 14, wherein the phthalocyanine has a structure of formula (I) or a pharmaceutically acceptable salt thereof

(I)

wherein Pc is a substituted or unsubstituted phthalocyanine; and

M is a diamagnetic metal ion, optionally complexed with or covalently bound to one or two axial ligands, wherein the metal ion is coordinated to the phthalocyanine moiety.

16. (Original) A pharmaceutical composition of claim 14, wherein the phthalocyanine has a structure of formula (II) or a pharmaceutically acceptable salt thereof

$$R^{15}$$
 R^{16}
 R^{1}
 R^{14}
 R^{13}
 R^{12}
 R^{11}
 R^{10}
 R^{9}
 R^{8}
 R^{7}
(II)

wherein M is a diamagnetic metal ion optionally complexed with or covalently bound to one or two axial ligands, wherein the metal ion is coordinated to the phthalocyanine moiety; and

 $R^{1}-R^{16} \ are \ each \ independently \ selected \ from \ hydrogen, \ halogen, \ nitro, \ cyano, \ hydroxy, \ thiol, \\ amino, \ carboxy, \ aryl, \ heteroaryl, \ carbocyclyl, \ heterocyclyl, \ C_{1-20} alkyl, \ C_{1-20} alkenyl, \ C_{1-20} alkyl, \ C_{1-20} alkylamino, \ C_{1-$

 R^{17} is selected from hydrogen, C_{1-20} acyl, C_{1-20} alkyl, and C_{1-20} aralkyl; and Z is selected from S, NR^{17} , and O.

17. (Currently amended) A method of claim 14, wherein the phthalocyanine has a structure of Formula (III) or a pharmaceutically acceptable salt thereof

wherein M is $(G)_aY[(OSi(CH_3)_2(CH_2)_bN_c(R')_d(R'')_e)_fX_g]_p;$

Y is selected from Si, Al, Ga, Ge, or Sn;

R' is selected from H, CH₃, C₂H₅, C₄H₉, C₄H₈NH, C₄H₈N, C₄H₈NCH₃, C₄H₈S, C₄H₈O, C₄H₈Se, OC(O)CH₃, OC(O), CS, CO, CSe, OH, C₄H₈N(CH₂)₃CH₃, (CH₂)₂N(CH₃)₂, (CH₂)_nN((CH₂)_o(CH₃))₂, and an alkyl group having from 1 to 12 carbon atoms;[[;]]

R" is selected from H, SO_2CH_3 , $(CH_2)_2N(CH_3)_2$, $(CH_2)_{11}CH_3$, $C(S)NHC_6H_{11}O_5$, $(CH_2)_nN((CH_2)_o(CH_3))_2$, and an alkyl group having from 1 to 12 carbon atoms;

G is selected from OH and CH₃;

X is selected from I, F, Cl, or Br;

a is 0 or 1;

b is an integer from 2 to 12;

c is 0 or 1;

d is an integer from 0 to 3;

e is an integer from 0 to 2;

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f is 1 or 2;
g is 0 or 1;
n is an integer from 1 to 12;
o is an integer from 1 to 11; and
p is 1 or 2.
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18. (Original) A method of claim 17, wherein M is selected from

AlOSi(CH₃)₂(CH₂)₃N(CH₃)₂; AlOSi(CH₃)₂(CH₂)₃N(CH₃)₃†T; CH₃SiOSi(CH₃)₂(CH₂)₃N(CH₃)₂;

HOSiOSi(CH₃)₂(CH₂)₃N(CH₃)₂; HOSiOSi(CH₃)₂(CH₂)₃N(CH₃)₃†T;

Si[OSi(CH₃)₂(CH₂)₃N(CH₃)₃†T]₂; Si[OSi(CH₃)₂(CH₂)₄NH₂]₂; Si[OSi(CH₃)₂(CH₂)₄NHSO₂CH₃]₂;

HOSiOSi(CH₃)₂(CH₂)₄NHSO₂CH₃; HOSiOSi(CH₃)₂(CH₂)₃N(CH₂CH₃)(CH₂)₂N(CH₃)₂;

Si[OSi(CH₃)₂(CH₂)₄ NHCSNHC₆H₁₁O₅]₂; Si[OSi(CH₃)₂(CH₂)₃N(CH₃)₂]₂;

HOSiOSi(CH₃)₂(CH₂)₃OCOCH₃; HOSiOSi(CH₃)₂(CH₂)₃N(CH₃)₂]₂;

Si[OSi(CH₃)₂(CH₂)₃N(CH₂CH₃)(CH₂)₂N(CH₃)₂]₂; HOSiOSi(CH₃)₂(CH₂)₃NC₄H₈O;

AlOSi(CH₃)₂(CH₂)₃N[†](CH₃)₂(CH₂)₁1CH₃Γ; HOSiOSi(CH₃)₂(CH₂)₃NC₄H₈S;

HOSiOSi(CH₃)₂(CH₂)₃N(CH₂)₃(CH₂)₃CH₃)₂; HOSiOSi(CH₃)₂(CH₂)₃NC₄H₈S;

HOSiOSi(CH₃)₂(CH₂)₃N(CH₂)₃N(CH₃)₂; HOSiOSi(CH₃)₂(CH₂)₃NC₄H₈NCH₃;

Si[OSi(CH₃)₂(CH₂)₃NC₄H₈NCH₃]₂; HOSiOSi(CH₃)₂(CH₂)₃NC₄H₈N(CH₂)₃CH₃; and

Si[OSi(CH₃)₂(CH₂)₃NC₄H₈NH₁]₂.

- 19. (Original) A method of claim 18, wherein M is $HOSiOSi(CH_3)_2(CH_2)_3N(CH_3)_2$.
- 20. (Original) A method of claim 14, wherein the phthalocyanine has a structure of Formula (IV) or a pharmaceutically acceptable salt thereof

$$SiPc[(OR^1)(OR^2)]$$

(IV)

wherein R¹ is selected from H and R²;

each R^2 is independently $Si(R^3)_2(C_{1-12}alkyl-N(C_{1-12}alkyl)_2)$; each R^3 is independently selected from $C_{1-12}alkyl$, $C_{1-12}alkoxy$, $C_{1-12}aralkyl$, aryloxy, and aryl.

- 21. (Original) A method of claim 12, wherein the phthalocyanine is formulated as a salt selected from hydrobromide, hydrochloride, sulfate, bisulfate, phosphate, nitrate, acetate, pyruvate, valerate, oleate, palmitate, stearate, laurate, benzoate, lactate, phosphate, tosylate, citrate, maleate, fumarate, succinate, tartrate, naphthylate, mesylate, glucoheptonate, lactobionate, and laurylsulphonate salts.
- 22. (Currently Amended) A method of any one of claims 15-20 claim 15, wherein the phthalocyanine is formulated as a salt selected from hydrochloride and pyruvate.
- 23. (Original) A pharmaceutical composition of claim 22, wherein the phthalocyanine is formulated as a hydrochloride salt.
- 24. (Original) A method of claim 22, wherein the phthalocyanine is formulated as a pyruvate salt.
- 25. (Original) A pharmaceutically acceptable salt of a compound having a structure of formula (I) or a pharmaceutically acceptable salt thereof

[Pc·M]

(I)

wherein Pc is a substituted or unsubstituted phthalocyanine; and

M is a diamagnetic metal ion, optionally complexed with or covalently bound to one or two axial ligands, wherein the metal ion is coordinated to the phthalocyanine moiety.

26. (Original) A pharmaceutically acceptable salt of a compound having a structure of formula (II) or a pharmaceutically acceptable salt thereof

$$R^{15}$$
 R^{16}
 R^{1}
 R^{14}
 R^{13}
 R^{12}
 R^{11}
 R^{10}
 R^{9}
 R^{8}
 R^{7}
(II)

wherein M is a diamagnetic metal ion optionally complexed with or covalently bound to one or two axial ligands, wherein the metal ion is coordinated to the phthalocyanine moiety; and

 $R^{1}-R^{16} \ are \ each \ independently \ selected \ from \ hydrogen, \ halogen, \ nitro, \ cyano, \ hydroxy, \ thiol, \\ amino, \ carboxy, \ aryl, \ heteroaryl, \ carbocyclyl, \ heterocyclyl, \ C_{1-20}alkyl, \ C_{1-20}alkylamino, \ C_{1-20}alkylamino$

 R^{17} is selected from hydrogen, $C_{1\text{-}20}$ acyl, $C_{1\text{-}20}$ alkyl, and $C_{1\text{-}20}$ aralkyl; and Z is selected from S, NR^{17} , and O.

27. (Currently amended) A pharmaceutically acceptable salt of a compound having a structure of Formula (III) or a pharmaceutically acceptable salt thereof

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wherein M is (G)_a Y[(OSi(CH_3)_2(CH_2)_bN_c(R')_d(R'')_e)_fX_g]_p;
Y is selected from Si, Al, Ga, Ge, or Sn;
R' is selected from H, CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, C<sub>4</sub>H<sub>9</sub>, C<sub>4</sub>H<sub>8</sub>NH, C<sub>4</sub>H<sub>8</sub>N, C<sub>4</sub>H<sub>8</sub>NCH<sub>3</sub>, C<sub>4</sub>H<sub>8</sub>S, C<sub>4</sub>H<sub>8</sub>O, C<sub>4</sub>H<sub>8</sub>Se,
             OC(O)CH<sub>3</sub>, OC(O), CS, CO, CSe, OH, C<sub>4</sub>H<sub>8</sub>N(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>, (CH<sub>2</sub>)<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>,
             (CH<sub>2</sub>)<sub>n</sub>N((CH<sub>2</sub>)<sub>o</sub>(CH<sub>3</sub>))<sub>2</sub>, and an alkyl group having from 1 to 12 carbon atoms;[[; ]]
R" is selected from H, SO<sub>2</sub>CH<sub>3</sub>, (CH<sub>2</sub>)<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, (CH<sub>2</sub>)<sub>11</sub>CH<sub>3</sub>, C(S)NHC<sub>6</sub>H<sub>11</sub>O<sub>5</sub>,
             (CH<sub>2</sub>)<sub>n</sub>N((CH<sub>2</sub>)<sub>o</sub>(CH<sub>3</sub>))<sub>2</sub>, and an alkyl group having from 1 to 12 carbon atoms;
G is selected from OH and CH<sub>3</sub>;
X is selected from I, F, Cl, or Br;
a is 0 or 1;
b is an integer from 2 to 12;
c is 0 or 1;
d is an integer from 0 to 3;
e is an integer from 0 to 2;
f is 1 or 2;
g is 0 or 1;
n is an integer from 1 to 12;
o is an integer from 1 to 11; and
p is 1 or 2.
                          (Original) A pharmaceutically acceptable salt of claim 17, wherein M is selected
             28.
from AlOSi(CH<sub>3</sub>)<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>N(CH<sub>3</sub>)<sub>2</sub>; AlOSi(CH<sub>3</sub>)<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>N(CH<sub>3</sub>)<sub>3</sub>T;
CH<sub>3</sub>SiOSi(CH<sub>3</sub>)<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>N(CH<sub>3</sub>)<sub>2</sub>; HOSiOSi(CH<sub>3</sub>)<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>N(CH<sub>3</sub>)<sub>2</sub>;
HOSiOSi(CH_3)_2(CH_2)_3N(CH_3)_3^{\dagger}T; Si[OSi(CH_3)_2(CH_2)_3N(CH_3)_3^{\dagger}T]_2; Si[OSi(CH_3)_2(CH_2)_4NH_2]_2;
Si[OSi(CH_3)_2(CH_2)_4NHSO_2CH_3]_2;\\ HOSiOSi(CH_3)_2(CH_2)_4NHSO_2CH_3;\\
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 $HOSiOSi(CH_{3})_{2}(CH_{2})_{3}N(CH_{2}CH_{3})(CH_{2})_{2}N(CH_{3})_{2};\\Si[OSi(CH_{3})_{2}(CH_{2})_{4}\ NHCSNHC_{6}H_{11}O_{5}]_{2};\\$

 $Si[OSi(CH_3)_2(CH_2)_3N(CH_3)_2]_2; HOSiOSi(CH_3)_2(CH_2)_3OCOCH_3; HOSiOSi(CH_3)_2(CH_2)_3OH; \\ Si[OSi(CH_3)_2(CH_2)_3N(CH_2CH_3)(CH_2)_2N(CH_3)_2]_2; HOSiOSi(CH_3)_2(CH_2)_3NC_4H_8O; \\ AlOSi(CH_3)_2(CH_2)_3N^{\dagger}(CH_3)_2(CH_2)_{11}CH_3\Gamma; HOSiOSi(CH_3)_2(CH_2)_8N(CH_3)_2; \\ Si[OSi(CH_3)_2(CH_2)_3NC_4H_8O]_2; HOSiOSi(CH_3)_2(CH_2)_3NC_4H_8S; \\ HOSiOSi(CH_3)_2(CH_2)_3N(CH_2)_3(CH_3)_2; HOSiOSi(CH_3)_2(CH_2)_3NCS; \\ HOSiOSi(CH_3)_2(CH_2)_3N[(CH_2)_3N(CH_3)_2]_2; HOSiOSi(CH_3)_2(CH_2)_3NC_4H_8NCH_3; \\ Si[OSi(CH_3)_2(CH_2)_3NC_4H_8NCH_3]_2; HOSiOSi(CH_3)_2(CH_2)_3NC_4H_8N(CH_2)_3CH_3; and \\ Si[OSi(CH_3)_2(CH_2)_3NC_4H_8NH]_2. \\$

- 29. (Original) A pharmaceutically acceptable salt of claim 18, wherein M is HOSiOSi(CH₃)₂(CH₂)₃N(CH₃)₂.
- 30. (Original) A pharmaceutically acceptable salt of claim 14, wherein the phthalocyanine has a structure of Formula (IV) or a pharmaceutically acceptable salt thereof SiPc[(OR¹)(OR²)]

(IV)

wherein R^1 is selected from H and R^2 ; each R^2 is independently $Si(R^3)_2(C_{1-12}alkyl-N(C_{1-12}alkyl)_2)$; each R^3 is independently selected from $C_{1-12}alkyl$, $C_{1-12}alkyl$, aryloxy, and aryl.

- 31. (Currently Amended) A salt of any one of claims 25-30 claim 25, wherein the salt is the hydrochloric salt.
- 32. (Currently Amended) A salt of any one of claims 25-30 claim 25, wherein the salt is the pyruvate salt.
- 33. (Currently Amended) A pharmaceutical composition comprising a salt any one of claims 25-30 of claim 25 and a pharmaceutically acceptable carrier.